

FREDERICK H. PICKEL

SUMMARY

Dr. Pickel, a Vice President at Tabors Caramanis & Associates, has over twenty-nine years of experience in the electric and gas industries, as well as with government, in the US and abroad. He has assisted firms with integrated business risk analysis, new business development, adapting regulatory policies to new business environments, and business strategy, planning and implementation “from concept to contracts” in both the electricity and gas industries. Prior to joining TCA, Dr. Pickel was with a “big five” accounting firm’s business risk management and utility consulting teams, Southern California Gas and its affiliates, New England Electric, SRI International's Decision Analysis Group and the Federal Power Commission.

Dr. Pickel holds a Ph.D. in engineering/economic systems analysis, an M.S. in operations research, and an M.S. in civil engineering from the Massachusetts Institute of Technology, as well as a B.S. with distinction in engineering and economics from Harvey Mudd College, Claremont, California. His executive education includes studies in organizational change and strategic planning at Wharton and the merger program at Northwestern.

EDUCATION

Ph.D., Engineering/Economic Systems Analysis, Massachusetts Institute of Technology, Cambridge, Massachusetts. Program combined finance and economics, decision analysis and management science, and energy technology and policy, 1982.

M.S., Operations Research and M.S. in Civil Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, 1978.

B.S. with distinction, Engineering & in Economics. Economics through Pomona College, Harvey Mudd College, Claremont, California, 1974

Executive Education Programs

Managing People & Managing Organizational Change, Wharton, 1992.

Merger Program, Kellogg Graduate School of Management, Northwestern University, 1988.

Strategic Planning, Wharton School of the University of Pennsylvania, 1987.

EXPERIENCE HIGHLIGHTS

November 1999 – present. Vice President, Tabors Caramanis & Associates. Product and business development in a variety of areas including implementation of real-time pricing, e-commerce/power



marketing and trading in the electric industry, cost/ risk management for major energy users, and expert testimony on energy supply/demand issues and contract termination, valuation, and interpretation in multiple forums.

1994 – November 1999. Director, Energy Business Risk Management, Business Risk Management Competency Development Center, National Utility Consulting Group, and Venture Associates units, Arthur Andersen, Los Angeles, California. Established electricity marketing practice in leading energy utility business planning consulting group. Assisted clients in exploring opportunities in power marketing, including strategy, implementation, and business and price risk management in North and South America for Canadian, U.S., and European clients. Also assisted participants in changing U.S. and U.K. gas market with gas supply strategies. Evaluated trading and market risks in corporatization/ privatization initiatives in Canada, Hungary, and Egypt. Reviewed strategy for utility in severe business decline, testifying on restructuring. Guided major North American utilities in integrated, strategic business risk analyses of key units.

1993 – 1994, President, Virtual Energy Corporation, Los Angeles, California, an affiliate of TCA. Founded gas and electric industry consulting firm specializing in corporate strategy, new business development, gas & electricity supply portfolios & risk management, and negotiation & regulatory support. Firm developed expertise in electricity marketing & links to gas markets and, in association with ABB and Merrimack Energy, the potential for new DC transmission between markets.

1984 – 1993, Southern California Gas Company, Los Angeles, California, and other Pacific Enterprises affiliates:

- Gas Acquisition Policy Manager, SoCalGas. Managed gas supply policy and analysis group for largest US gas utility, recommending gas acquisition and interstate transmission service policies. Proposed and supervised a marketing research & strategy review for gas sales services. Developed and implemented new gas acquisition policy; supported as witness before PUC. In team, developed incentive regulation proposal for gas costs, including NYMEX futures-based price indexing. Altered strategy. Gap cut between system gas cost and spot market. Negotiated key changes in supply and transportation service, dropping major traditional supplier, adding nearly \$2 billion in new supplies, restructuring and extending pipeline service, and gaining expanded access into a developing supply basin.
- Manager of Strategy and Development, Pacific Enterprises. Responsible, in a small team reporting to CFO, for strategic planning and corporate development activities for \$5 billion holding company. Coordinated strategic plans for oil & gas exploration, pipeline, gas distribution utility, and alternative energy subsidiaries. Assisted key executives with major business strategy review for gas utility, which faced deregulation and new competitive threats. Led evaluation of growth opportunities. Initiated and reviewed merger & acquisition and



start-up opportunities for energy businesses. Provided independent industry analyses to parent management.

- Director of Business Development and Energy Sales, Pacific Energy. Manager of Power Sales. Worked in a team that developed this independent power company's first two hydro projects. Closed new and workout agreements on hydro, geothermal, and landfill gas. Negotiated electricity and landfill gas sales agreements with public and private buyers for new and existing alternative energy projects from Hawaii to Maine and Florida.

1979 - 1984, Administrator, Special Energy Projects, reporting to VP / General Counsel (1981-84), Consultant to Vice President / Associate General Counsel. New England Electric, Westborough, Massachusetts. Managed alternative energy development for long-range electric utility supply. Energy purchases grew from \$3 million in 1980 to 1/3 of company's new supplies in 1990's. Negotiated energy purchases from non-utility power producers and agreements for utility-owned alternative energy and district heating projects with forecast \$40 million savings. Directed alternative energy regulatory activities in 3 states; legislative and regulatory expert witness. Instituted and obtained regulatory approval on new tariff for cogenerators.

1976 - 1977, Management Consultant, SRI International, Decision Analysis Group, Menlo Park, California. Analyzed coal procurement and mine development strategies for a major electric utility. Evaluated federal incentives for shale oil and HTGR.

1974 - 1975, General Engineer, Federal Power Commission. Compared regional US energy patterns; installed econometric system.

1975 - 1976, 1977-1981, Research and Teaching Assistant, Massachusetts Institute of Technology, Cambridge, Massachusetts: Energy Laboratory & Parsons Water Resource Laboratory. Researched industrial cogeneration and its impact on electric utility planning and tariff policy (dissertation topic); real-time pricing for electricity and transmission service; water supply in less developed countries; regional land-use/water quality planning. Instructed in courses on mathematical optimization and engineering systems analysis.

MAJOR PROJECTS

Guided a number of major North American energy companies in integrated business risk analyses of their bulk power, transmission, distribution, R&D, wholesale pool, gas purchasing, and new business units.

Testified on electricity and natural gas economics and contract issues in public utility, federal regulatory, state and federal court, and international arbitration venues. Contract issues included contract valuation, termination, relative risks, and interpretation.



Evaluated opportunities in electricity marketing and the electric industry restructuring for clients in the gas and electric industries, including: utilities trying to retain customers and create new businesses; and equipment manufacturers and independent power marketers examining new business, marketing, and alliance and acquisition strategies.

- Led several utilities and gas marketers in the development of strategies and business planning efforts intended to establish and implement electricity marketing groups. This has included electricity and gas price risk strategies, processes, and controls reviews and plans, in conjunction with the Arthur Andersen derivatives and trading teams.
- Assisted a large utility in evaluating organizational alternatives for its retail, generation, and independent power marketing activities.
- Developed market-based transfer pricing system for power supply and transmission & distribution services between new strategic business units of major west coast utility, which also supported business unit shareholder value analysis.
- Guided a major Canadian utility in the use of FERC standards on transmission tariff issues in development of a “comparable access” tariff.
- Surveyed business opportunities for electricity marketing and trading activities in the U.S., U.K., Argentina, and Europe.
- Advised Hungarian Energy Office on EU Directive for electricity markets and access.
- Co-authored paper with leading Wharton and MIT experts on the restructuring and unbundling of electric industry and its benefits, comparing pool and bilateral trading.
- Explored potential for new DC transmission linkages between key US and foreign markets, especially links between growth areas and new gas sources.
- Assessed regional North American generation business opportunities for an international generation developer and operator.
- Assisted a utility in risk and cost analysis that evaluated and implemented changes to its electricity supply portfolio for its customers under extreme market conditions.

Evaluated electricity and gas supply cost and risk management options for numerous major electricity and gas users.

- Assisted in numerous electric and gas supply efforts for major multi-site energy users, including evaluation and negotiations related to customer-owned generation facilities.
- Developed strategies, guided development of requirements and selection of new information systems, technology, and outsourcing options for large commercial, industrial, utility, IPP, and government clients.



- Led consulting effort for major regional government council to develop electricity purchasing aggregation program for over 100 local governments in Texas at the first stage of the state's electricity deregulation.

Assisted equipment / systems supplier in reviewing current and historical electric customer load response and real-time pricing programs, including tariffs, levels of demand response, and potential market scale.

Assisted clients in gas investment and purchasing strategies along with review of transportation tariffs issues.

- Evaluated and negotiated gas acquisition, transportation and supply agreements, investments, marketing, and regulatory incentive programs for local gas distributors, electric generators, and major gas using clients.
- Reviewed the interplay of non-core (utility and large industrial) and core (commercial and residential) use with the use of short-term and long-term storage in a major gas utility, supporting the need for increased short-term injection/withdrawal capacity.
- Critiqued gas transportation tariffs, and supported the preparation of testimony illustrating the price impact of new capacity and its benefits for the market and users.
- Assisted a gas utility in severe business decline with an analysis of business alternatives.
- Expert testimony on contract termination supporting a successful arbitration for \$100 million judgment in favor of client.

Managed gas supply policy and analysis group for largest US gas utility, recommending gas and interstate transmission procurement policies.

- Negotiated key changes in gas supply and transportation service for major gas utility, dropping major traditional supplier. Negotiated or developed policy guidelines for purchase of over \$5 billion in gas supplies and transportation services.
- Developed in team effort an incentive regulation proposal for gas costs, including NYMEX futures-based price indexing, which has been adopted by SoCalGas and approved by the CPUC.
- Expert testimony and reviews on energy purchasing.

Responsible, in a small team reporting to CFO, for strategic planning and corporate development activities for \$5 billion holding company.

- Assisted key executives with major business strategy review for largest US gas utility, which faced new competitive threats. Led evaluation of growth opportunities.

Worked in a team that developed an early independent power company's first two hydro projects, one in a unique joint venture with an electric



utility. Consummated new and workout agreements on hydro, geothermal, and landfill gas projects from California to Maine and Florida.

Managed alternative energy development for long-range electric utility supply for one of the northeast's leading electric utilities.

Appointed to Governor's Commission on Cogeneration, Commonwealth of Massachusetts, first committee in U.S. to recommend state cogeneration policy.

Participated in the Keystone II public policy forum on restructuring electric transmission.

Has been an invited speaker and author on electricity marketing, gas supply strategy, independent power, electric industry restructuring and cogeneration.

REPRESENTATIVE CLIENTS

ABB	American National Power
Bracewell & Patterson	BC Hydro
Boies, Schiller & Flexner	Bord Gáis Éireann
Borden Ladner Gervais	Chelan PUD
CILCO	Duke Energy
East Bay MUD	Edison International
Egyptian Electricity Authority	ELCON
Endesa	Enron
First Energy	First Interstate Bank
Florida Power & Light	GE Power Systems
Harrah's	Harvard Medical Area Service Co.
Houston-Galveston Area Council	Hydro Quebec
Lawson Lundell	Los Angeles County ISD
Manatt Phelps Phillips	National Grid USA
Ontario Hydro	Powerex Corp.
Public Service Colorado	PSEG
Schlumberger	Schwabe, Williamson & Wyatt
Sempra/SoCalGas	Simon Property Group
Tenneco Corporation	ThermoElectron
Unicom	Upper Blackstone Water PAD
Valero	Washington Gas Light
Westcoast Energy	Wild Goose Gas Storage
William Wilson & Associates	Zeigler Coal



PAPERS AND PUBLICATIONS

Invited speaker at many industry events. Selected publications and conference presentations:

"Money Power and Trade: What You Never Knew About the Western Energy Crisis." **Public Utilities Fortnightly**, Vol. 139, No. 9, May 1, 2001 (with S. A. Van Vactor).

"Power Marketing Transforms the U.S. Wholesale Electricity Business: the Growth of Electricity Marketing in the U.S." Published in **Fundamentals of the Global Power Industry**, Petroleum Economist in association with Arthur Andersen, London, January 1999.

"Unbundling the US Electric Power Industry: A Blueprint for Change." This paper, supported by Enron, describes an approach for expanding the bilateral trading of electricity at the wholesale and retail level in the US, and quantifies the benefits of restructuring. Privately published, 1995 (with R.D. Tabors, P. Kleindorfer, C. Fernando, and S.J. Robinson). Also published by University of Pennsylvania Wharton Risk Management and Decision Processes Center as Working Paper 95-03-05.

"Long-Term Contracts, Options, and the Core LDC Gas Supply Portfolio for Southern California," invited paper, Sixth New Mexico Natural Gas Conference, Santa Fe, May 1993.

"Cogeneration and Utility Planning," doctoral thesis, Mass. Inst. of Tech., MIT Energy Laboratory report #MIT-EL82--015, NTIS, 1982.

"Homeostatic Utility Control," IEEE Power Systems. This paper helped trigger the continuing debate on the spot pricing of electricity and transmission, with open access and competition. 1980 (with F.C. Schweppe, R.D. Tabors, J.L. Kirtley, H.R. Outhred, A.J. Cox).

"Why Did the Role of Cogeneration Diminish?" invited paper, Sixth Energy Technology Conference, Washington, DC, 1979.

ACTIVITIES AND AFFILIATIONS

Harvey Mudd College, 1986-present. Board of Trustees, 1989-1992: Member of "Campaign Cabinet" and chair of alumni sub-committee for college's 5 year \$75 million fund raising effort, supporting two new majors and college's financial base (1989-1994). Presidential Selection Committee (1987-1988). Governor, Alumni Board: Elected member (1986-present); Treasurer (1988-1989). Alumni representative on Board of Trustees Development Committee (2002-present).

International Association for Energy Economics; National Science Foundation Scholarship; Society of Sigma Xi.



Governor's Commission on Cogeneration, Commonwealth of Massachusetts. Appointed to first committee in US to recommend state cogeneration policy (1977-1978).

